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Sato

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(54) **METHOD OF INSTALLING SEISMIC ISOLATION FLOOR**

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E04F 15/18 (2006.01)
E04H 9/02 (2006.01)

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CPC . ***E04B 1/98*** (2013.01); ***E04F 15/18*** (2013.01); ***E04F 15/185*** (2013.01); ***E04H 9/02*** (2013.01)

(58) **Field of Classification Search**
USPC 52/167.1, 167.4, 167.5, 167.9
See application file for complete search history.

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(57) **ABSTRACT**

A method of installing a base isolation floor includes a base arrangement process for installing a plurality of plate-shaped bases, which are formed so that a plurality of upward convex curved surface portions are aligned on an upper surface, on double-sided tapes applied onto an upper surface of a floor over a plurality of columns to be substantially parallel to each other and thereby arranging the bases on the upper surface of the floor and a slide plate installation process for installing a plurality of plate-shaped slide plates having a substantially flat lower surface on the base.

25 Claims, 20 Drawing Sheets

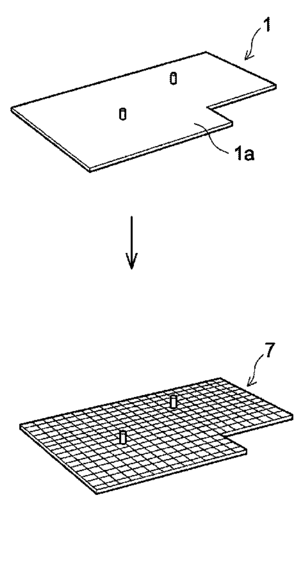


Fig.1

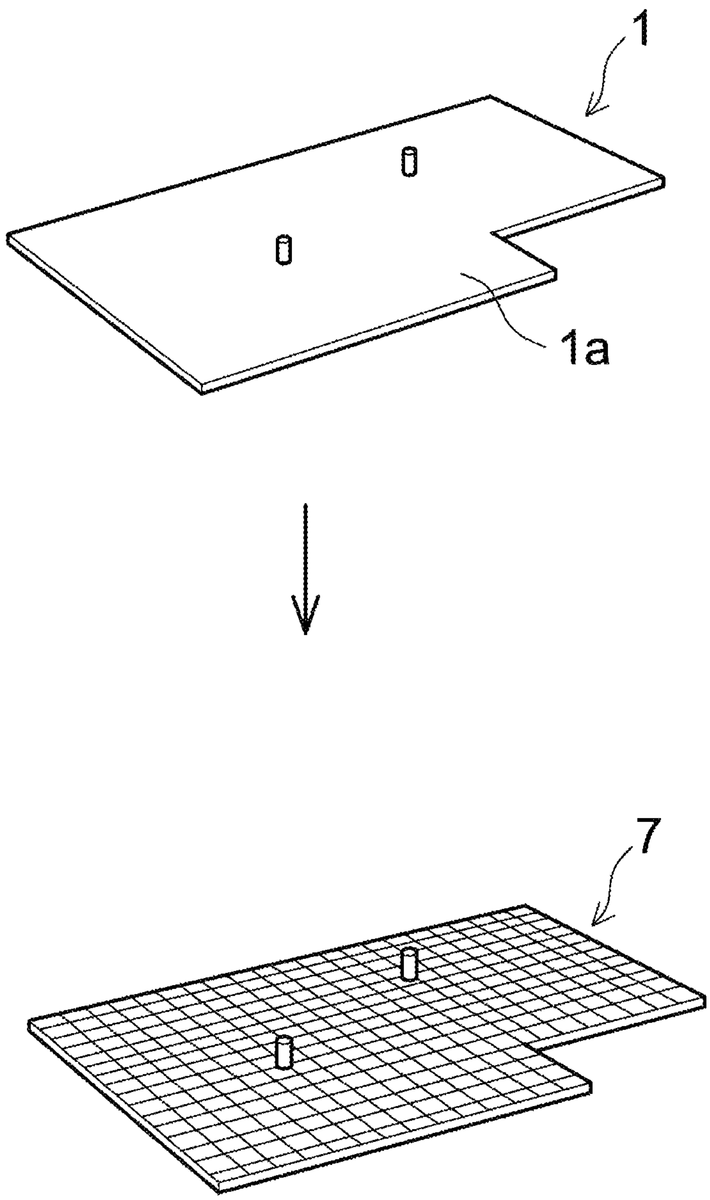


Fig.2A

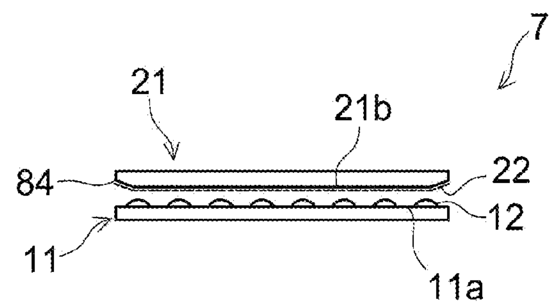


Fig.2B

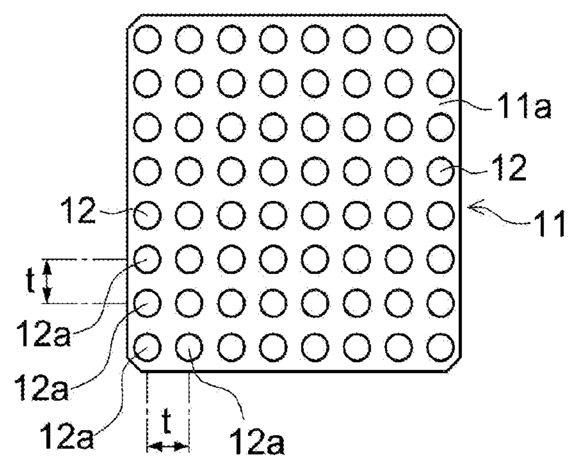


Fig.2C

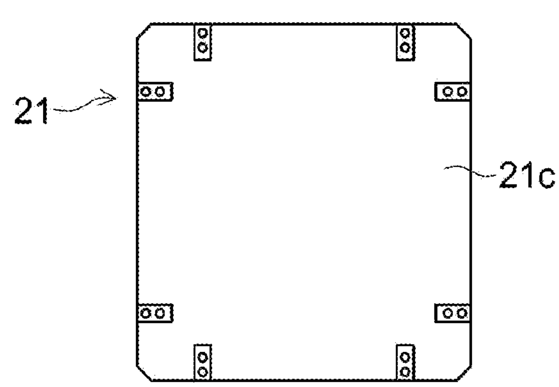


Fig.3A

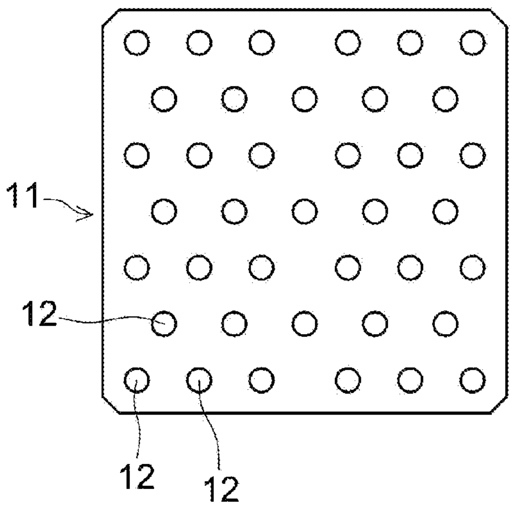


Fig.3B

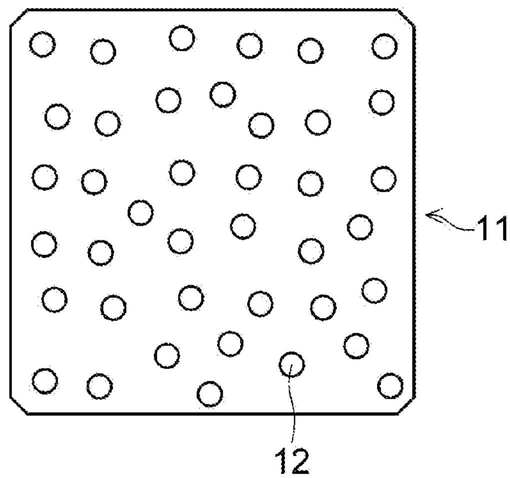


Fig.3C

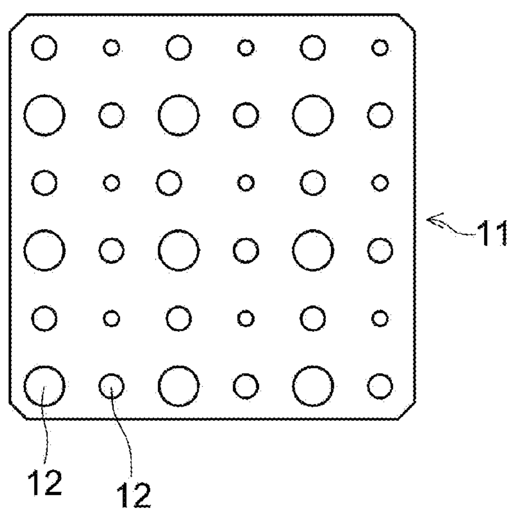


Fig.4A

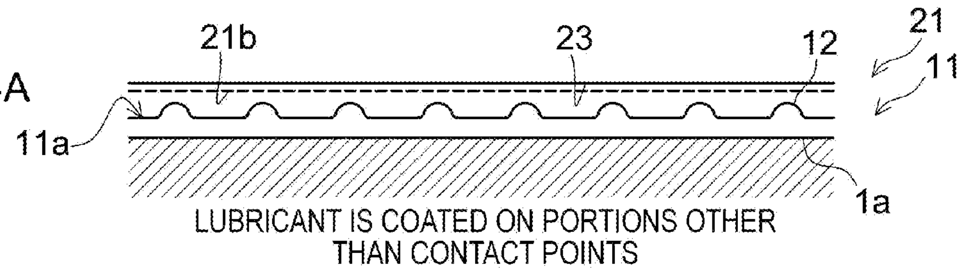


Fig.4B

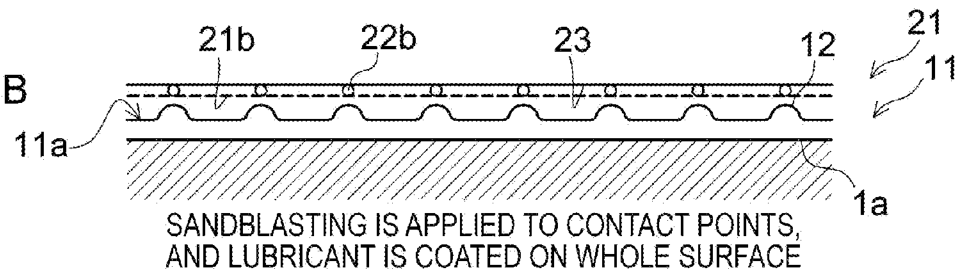


Fig.4C

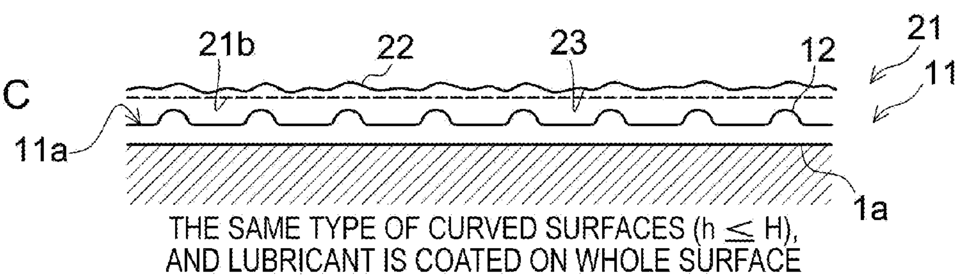


Fig.4D

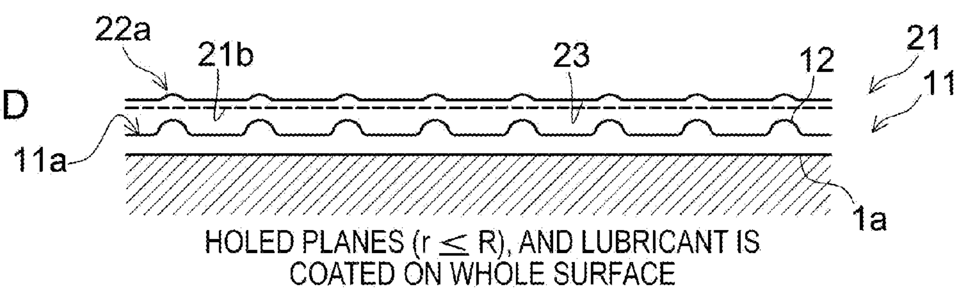
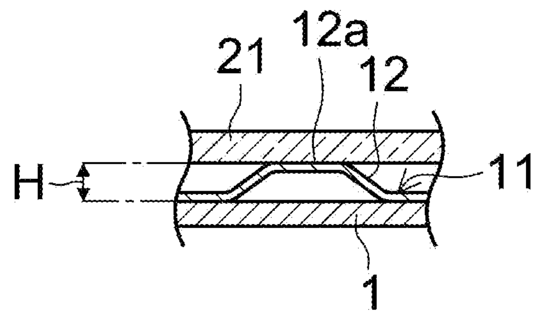


Fig.5A



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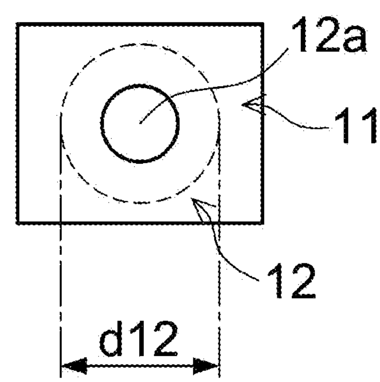


Fig.5C

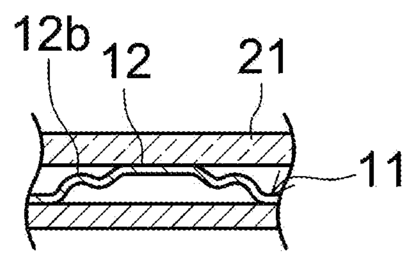
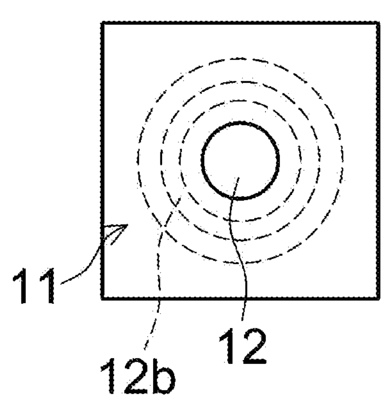


Fig.5D



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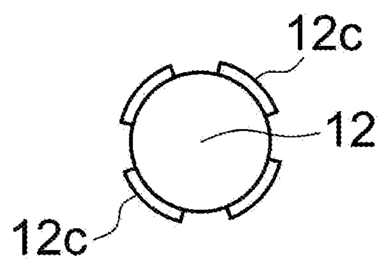
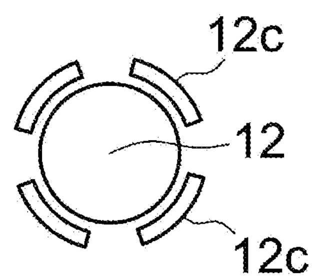


Fig.6B



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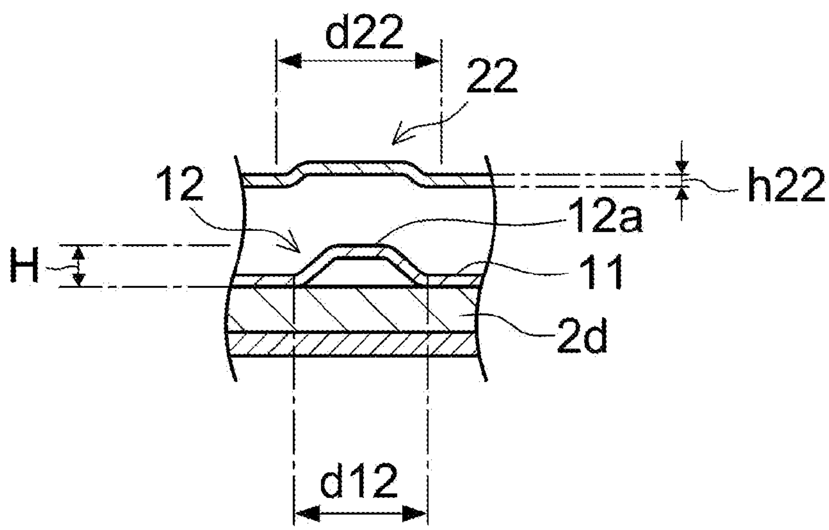
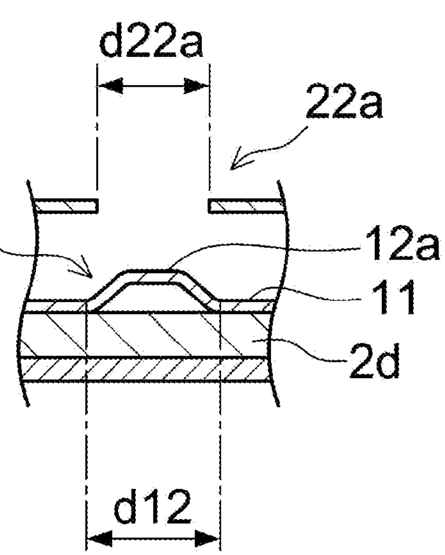


Fig.7B



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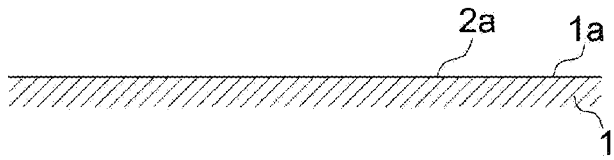

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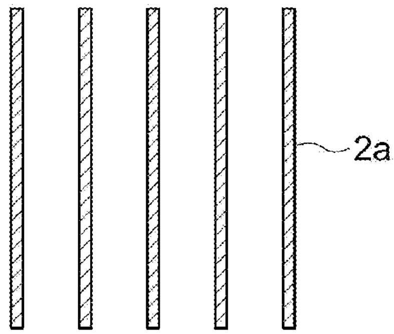

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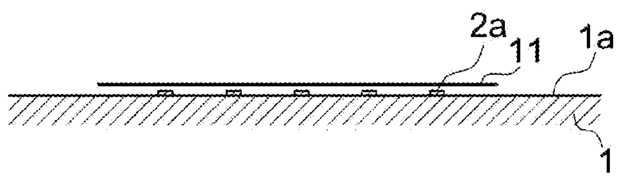

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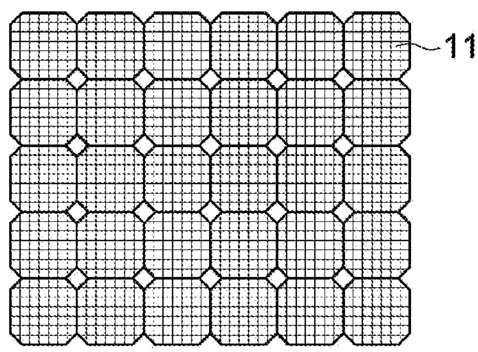


Fig.8E

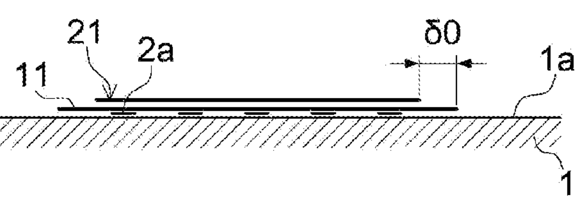


Fig.8F

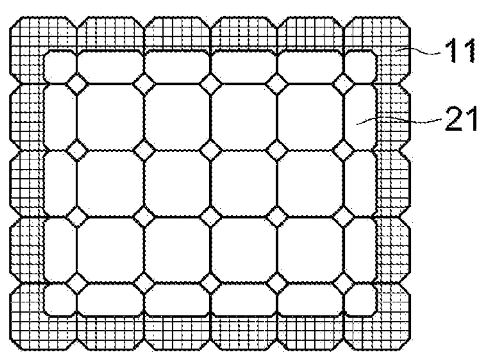


Fig.9A

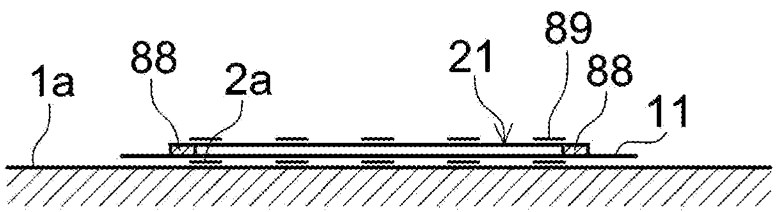


Fig.9B

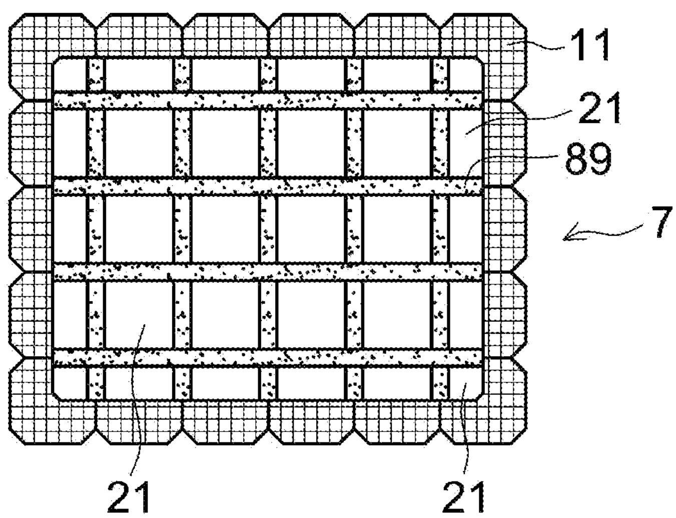
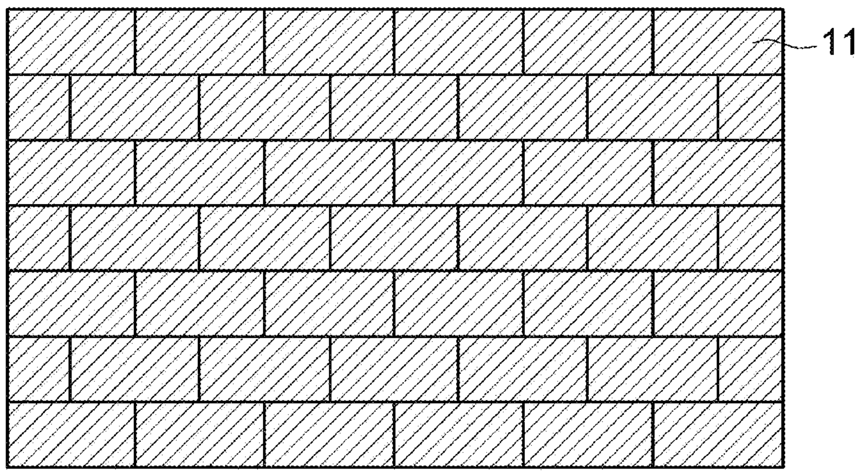


Fig.10A



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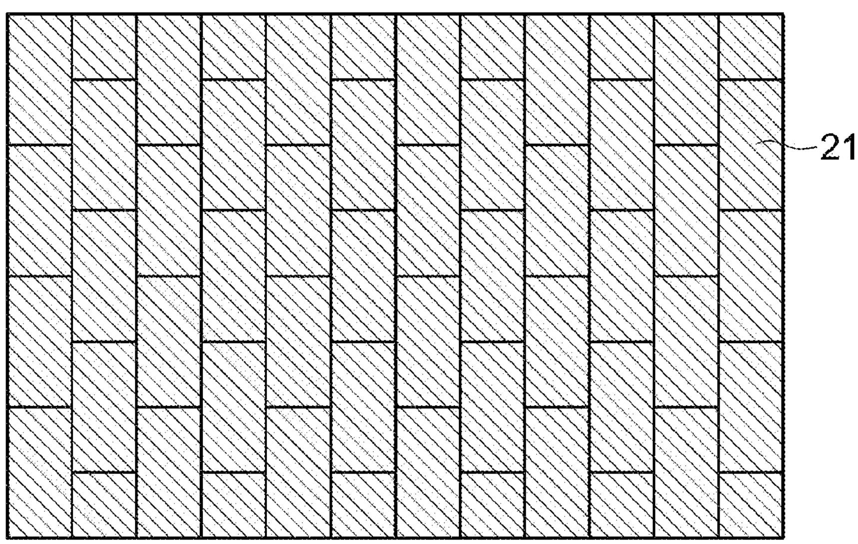

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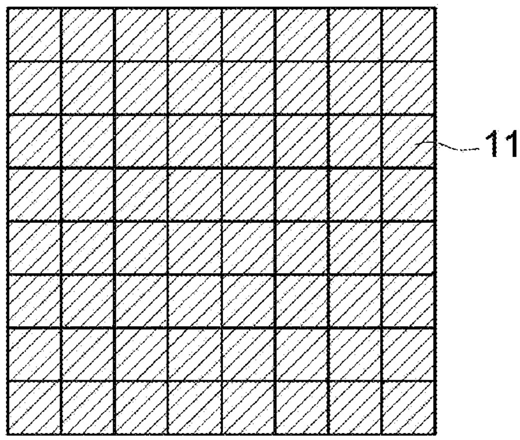

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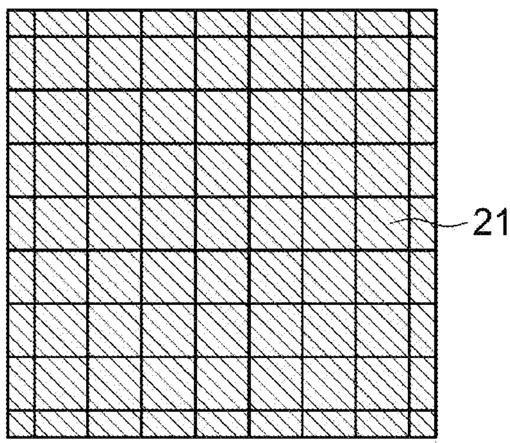
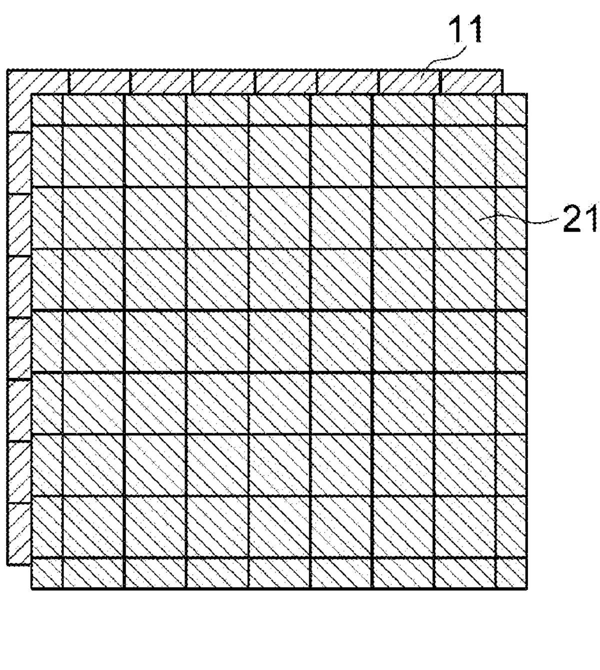


Fig.11C



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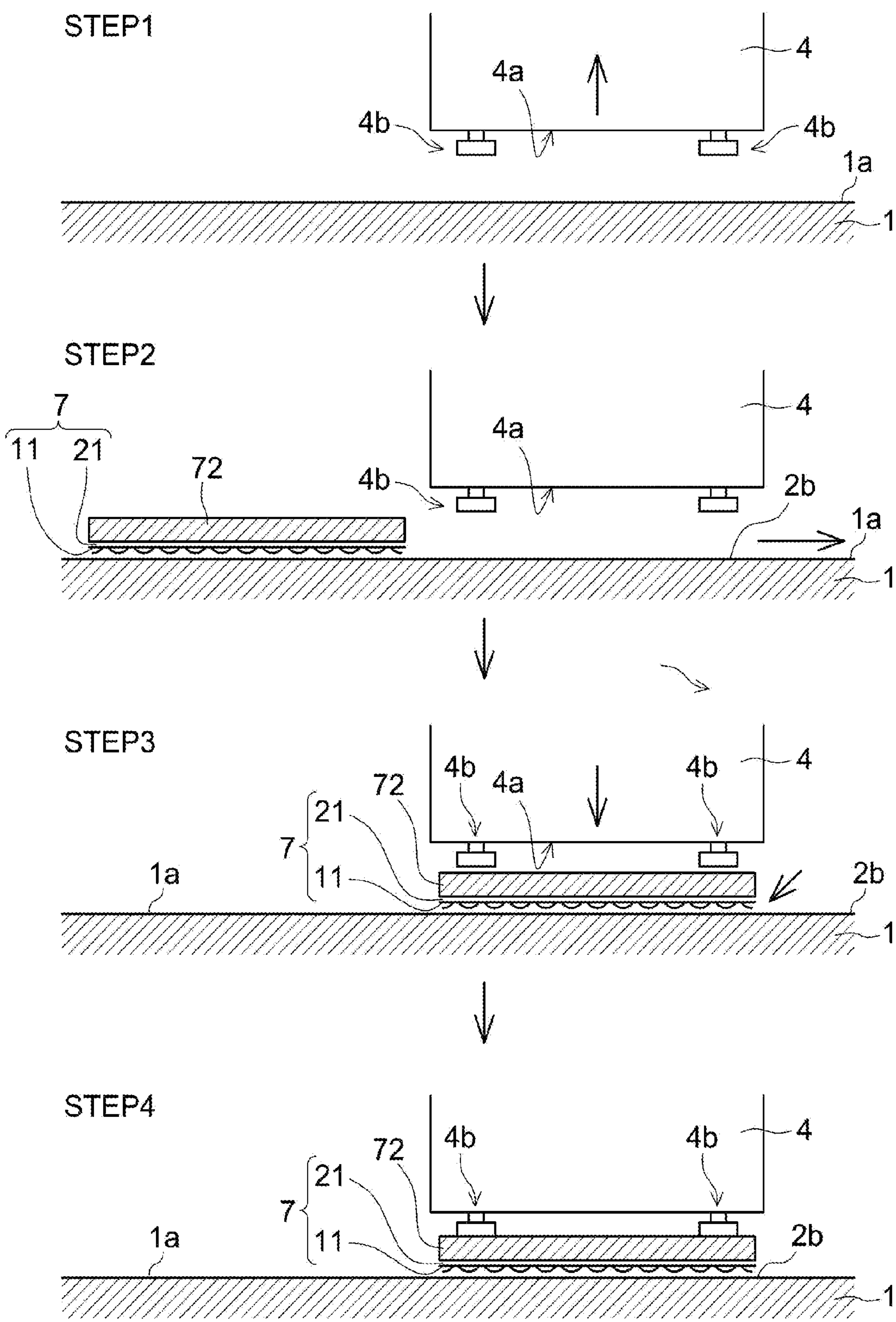
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4b
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4b
4b
4
72
4a
21
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Fig.13

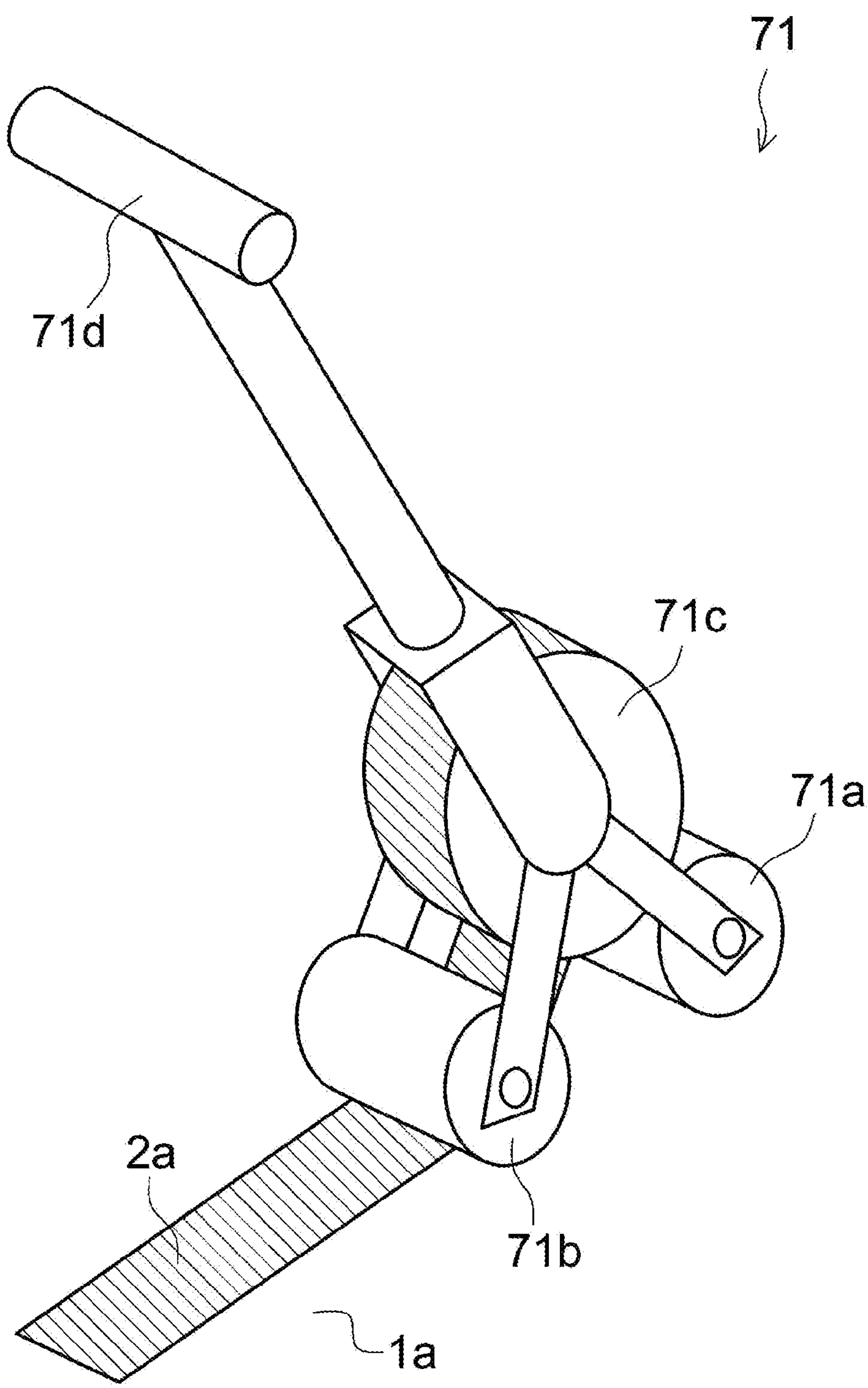


Fig.14

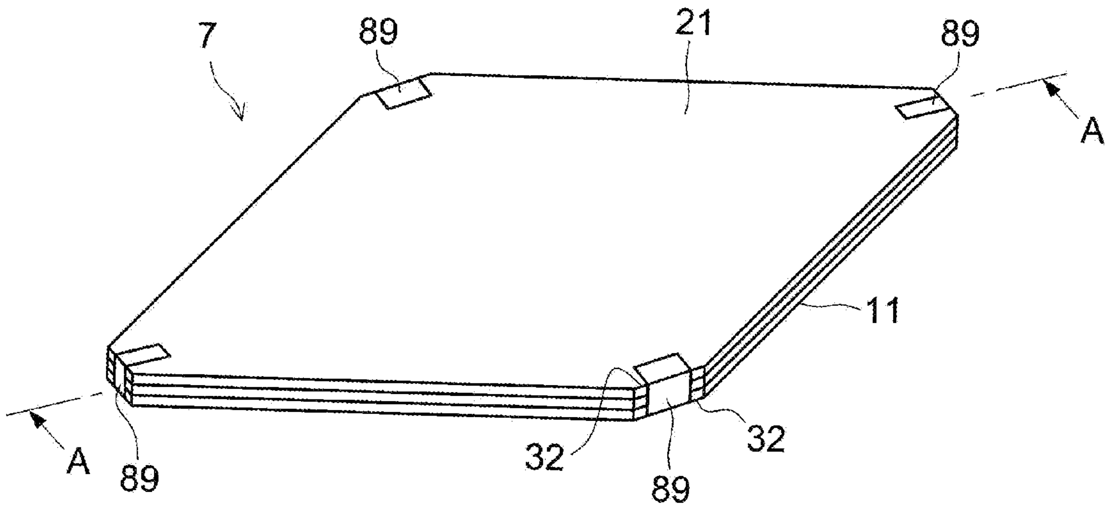


Fig.15A

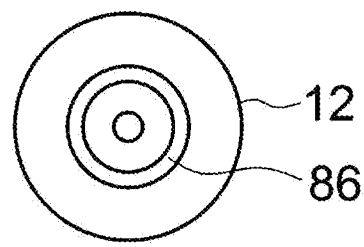


Fig.15B

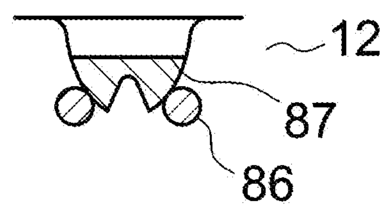


Fig.15C

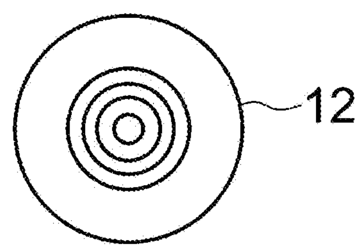


Fig.15D

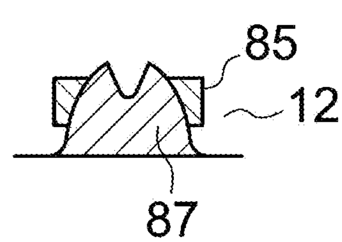


Fig.16A

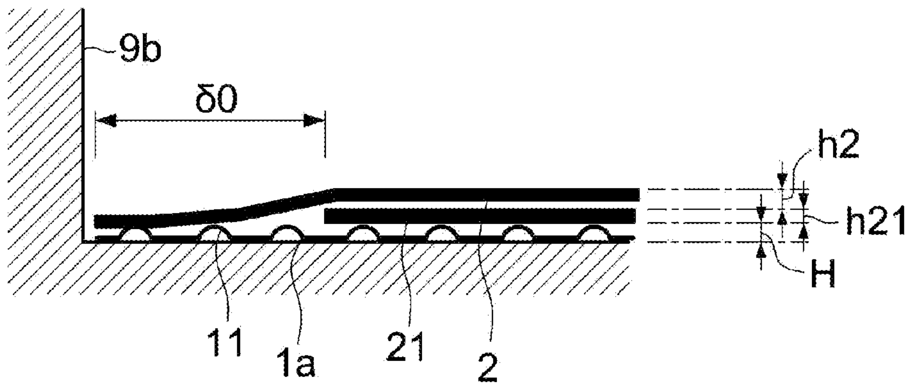


Fig.16B

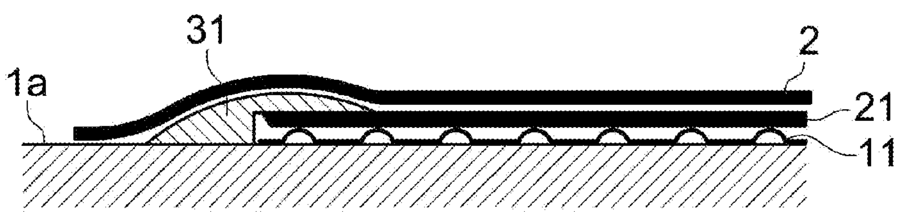


Fig.16C

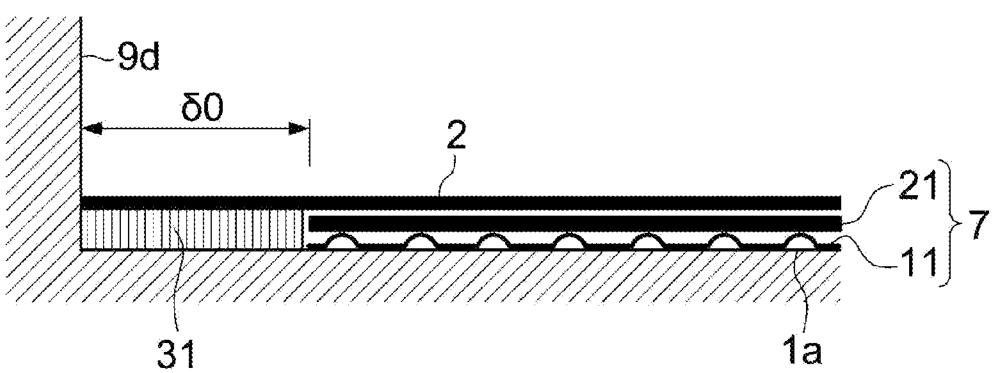


Fig.17A

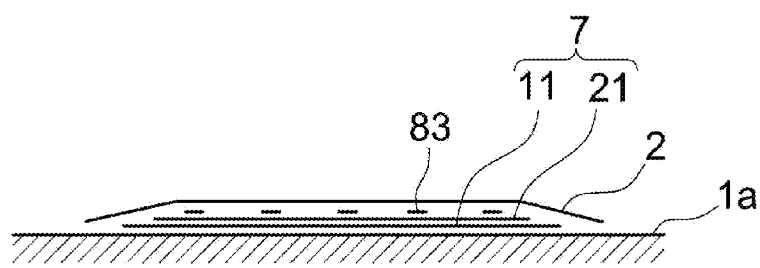


Fig.17B

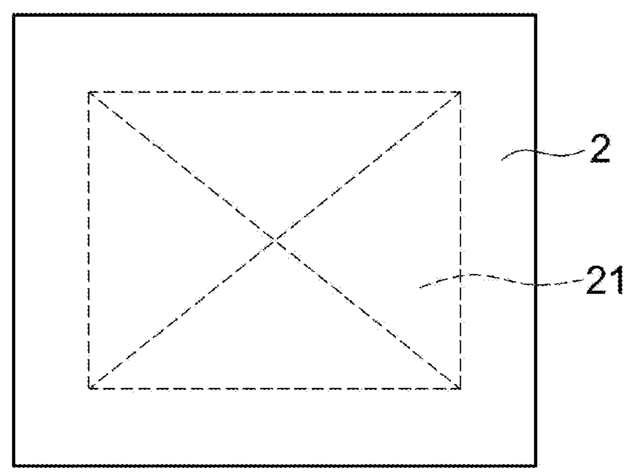


Fig.18

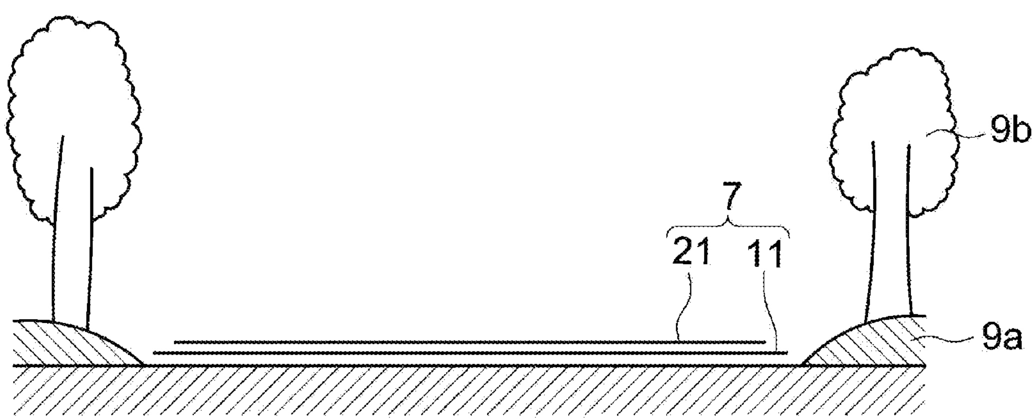


Fig.19

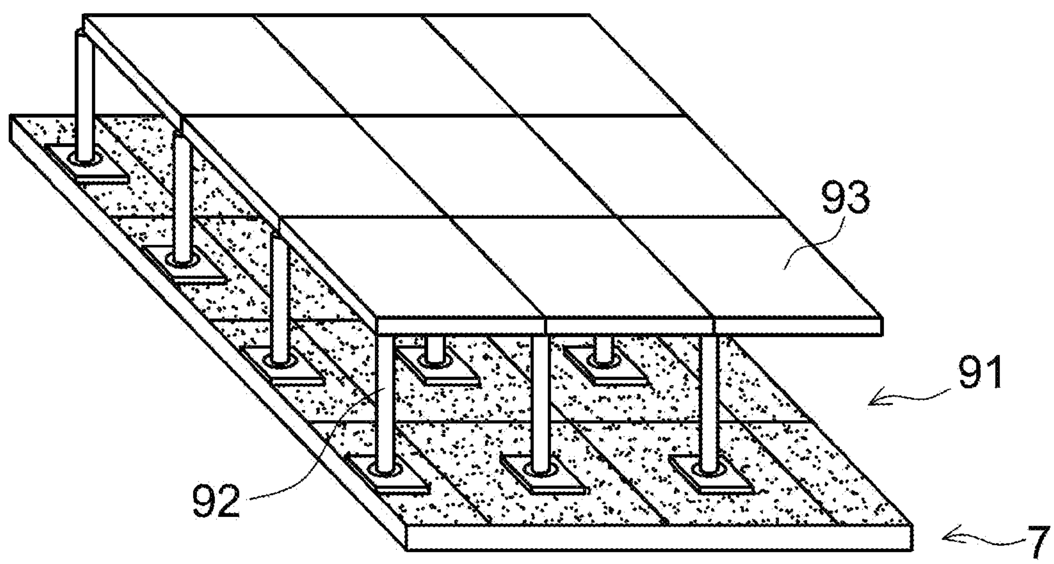


Fig.20A

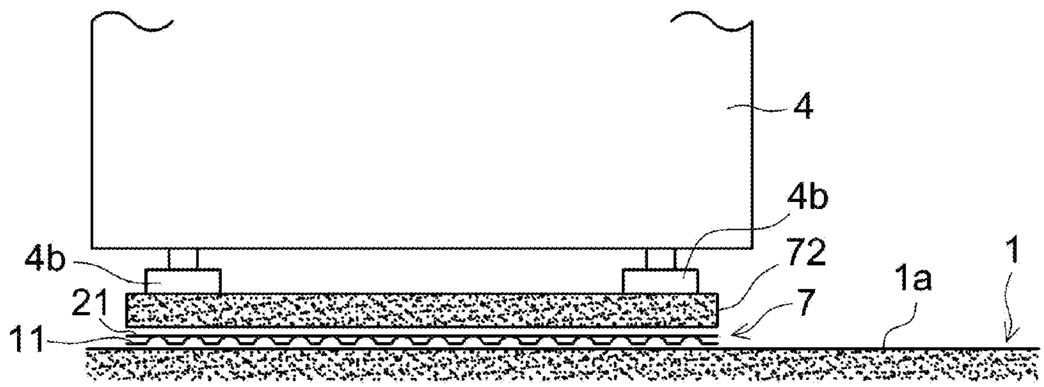
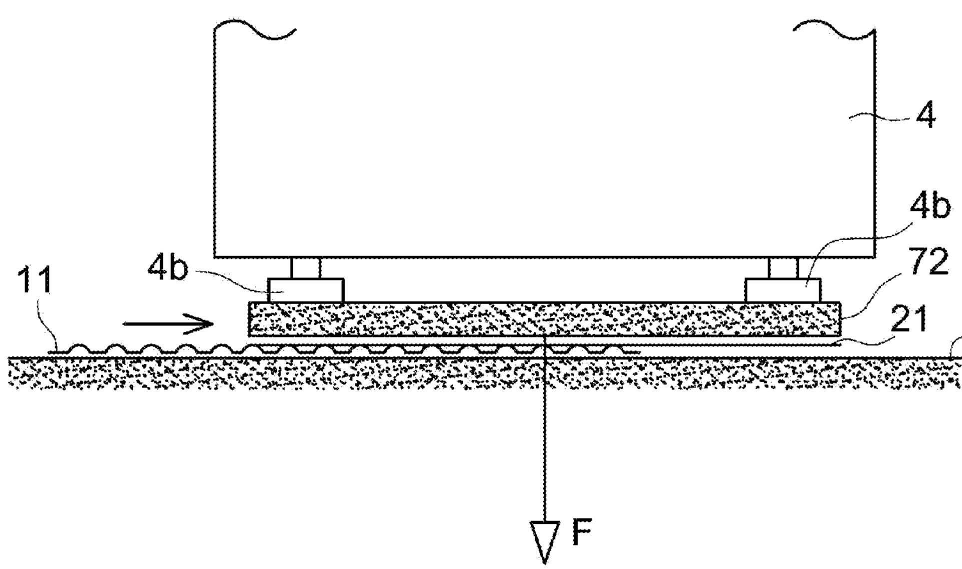


Fig.20B



METHOD OF INSTALLING SEISMIC ISOLATION FLOOR

TECHNICAL FIELD

The present invention relates to a method of installing a base isolation floor, which is suitably installed for effectively exercising a base isolation function even in a case where massive vibration due to earthquake is generated in a building and a civil engineering structure.

BACKGROUND ART

As a conventionally proposed indoor base isolation floor structure of a building and the like, as shown in Patent Literature 1, for example, there has been proposed a base isolation floor in which a plurality of ball bearings are fixed to a frame to thereby make the flame movable on a floor slab. In the technique disclosed by the Patent Literature 1, the ball bearings are arranged particularly in a lower portion of a metal pipe, whereby even if an earthquake load acts, since the rolling friction resistance of the ball bearing is small, the vibration is hardly transmitted to the base isolation floor.

Further, as disclosed in Patent Literature 2, there has been proposed a base isolation floor in which an upper plate and a lower plate provided with a plurality of grooves are installed between a floor material and precision equipment and the like, and balls in the grooves are rotated to make the upper plate movable on the lower plate. In the technique disclosed by the Patent Literature 2, even if the earthquake load acts, since the rolling friction resistance of the balls in the grooves is small, the vibration is hardly transmitted to the precision equipment and the like on the upper plate.

CITATION LIST

Patent Literatures

Patent Literature 1: JP 10-317658 A
Patent Literature 2: JP 2010-127455 A

SUMMARY OF INVENTION

Technical Problem

However, the base isolation floor disclosed in the Patent Literature 1 has a structure in which the bearing is attached to a square pipe with bolts and nuts. Thus, in the base isolation floor disclosed in the Patent Literature 1, the thickness of the entire base isolation structure is increased by the thickness of the square pipe and the like, so that the height of a floor surface is increased. When the height of the floor surface is unnecessarily large, there occurs a problem that an effective space in a building and the like is narrowed accordingly.

The base isolation floor disclosed in the Patent Literature 2 is installed between a floor material and precision equipment and the like. Thus, when the base isolation floor is installed with respect to existing precision equipment and the like, the precision equipment and the like are temporarily removed to be moved to another place, and after the base isolation floor is installed, the removed precision equipment and the like are required to be installed to an original position again. Thus, there are problems of an increase in a burden of installation labor and an increase in installation cost.

Meanwhile, in the base isolation floor disclosed in the Patent Literature 2, due to an unexpected large earthquake motion, when the upper plate is moved until the position of

the ball reaches an end of the groove, the ball and the end of the groove collide with each other, whereby the movement of the upper plate is suddenly stopped at the end of the groove, and there is a problem that the precision equipment and the like on the upper plate may be overturned by the action of inertia.

Thus, the present invention is devised in view of the above problems, an object of the invention is to provide a method of installing a base isolation floor which can effectively utilize an effective space in a building and the like by reducing the thickness of the entire base isolation structure, at the same time, can eliminate the fear of overturning precision equipment and the like because a head drop is small even if the base isolation floor is protruded by an unexpected large earthquake motion, and can reduce installation labor and installation cost.

Solution to Problem

In order to solve the above problems, as a result of intensive studies, the present inventor invented the following method of installing a base isolation floor.

A method of installing a base isolation floor according to a first invention includes a base arrangement process for installing a plurality of plate-shaped bases, which are formed so that a plurality of upward convex curved surface portions are aligned on an upper surface, on double-sided tapes applied onto the floor surface over a plurality of columns to be substantially parallel to each other and thereby arranging the bases on the floor surface and a slide plate installation process for installing a plurality of plate-shaped slide plates having a substantially flat lower surface on the base so that the slide plates are moved on the base by an earthquake motion, the slide plates are dropped from above the base, and the slide plates are moved on a floor surface around the base by inertia to be decelerated, and, thus, to stop.

A method of installing a base isolation floor according to a second invention includes a base arrangement process for installing a plurality of plate-shaped bases, which are formed so that a plurality of upward convex curved surface portions are aligned on an upper surface, on an adhesive layer coated onto the floor surface and thereby arranging the bases on the floor surface and a slide plate installation process for installing a plurality of plate-shaped slide plates having a substantially flat lower surface on the base so that the slide plates are moved on the base by an earthquake motion, the slide plates are dropped from above the base, and the slide plates are moved on a floor surface around the base by inertia to be decelerated, and, thus, to stop.

A method of installing a base isolation floor according to a third invention includes a base arrangement process for installing plate-shaped bases, which are formed so that a plurality of upward convex curved surface portions are aligned on an upper surface, on a nonslip sheet having a friction coefficient larger than that of the floor surface and a slide plate installation process for installing a plurality of plate-shaped slide plates having a substantially flat lower surface on the base so that the slide plates are moved on the base by an earthquake motion, the slide plates are dropped from above the base, and the slide plates are moved on a floor surface around the base by inertia to be decelerated, and, thus, to stop.

A method of installing a base isolation floor according to a fourth invention includes a base arrangement process for installing plate-shaped bases, which are formed so that a plurality of upward convex curved surface portions are aligned on an upper surface, on a nonslip sheet having a friction coefficient larger than that of the floor surface, a slide plate installation process for installing a plurality of plate-shaped slide plates having a substantially flat lower surface on the base so that the slide plates are moved on the base by an earthquake motion, the slide plates are dropped from above the base, and the slide plates are moved on a floor surface around the base by inertia to be decelerated, and, thus, to stop, and an insertion process for pulling a nonslip sheet while holding an end of the nonslip sheet to move the nonslip sheet while sliding the nonslip sheet on the floor surface, inserting the base and the slide plate, installed on the nonslip sheet, in between the floor surface and a bottom portion of equipment, and installing the equipment on the inserted slide plate.

In a method of installing a base isolation floor according to a fifth invention, in the base arrangement process in the first invention, the floor surface is heated by a heating roller for preheating arranged forward under a room temperature of not more than 0° C. and, at the same time, a double-sided tape is applied by using a roller for use in a refrigerating chamber capable of press-fitting the double-sided tape onto a floor surface, heated by the heating roller for preheating, with a heating roller for press-fitting arranged backward.

In a method of installing a base isolation floor according to a sixth invention, in any one of the first to fifth inventions, the base has a thickness of 1.5 mm.

In a method of installing a base isolation floor according to a seventh invention, in any one of the first to sixth inventions, a lower surface of the slide plate is coated with a lubricant at a portion not abutted against the convex curved surface portion of the base in such a state that the slide plate is installed on the base.

In a method of installing a base isolation floor according to an eighth invention, in any one of the first to seventh inventions, in the slide plate installation process, after a plurality of the slide plates are installed on the base, a thick plate is installed on the slide plate.

In a method of installing a base isolation floor according to a ninth invention, in any one of the first to eighth inventions, in the slide plate installation process, after a plurality of the slide plates are installed on the base, the base and a peripheral edge of the slide plate are sealed, and air of a gap between the base and the slide plate is replaced with an inert gas.

A method of installing a base isolation floor according to a tenth invention in any one of the first to ninth inventions includes an OA floor installation process for installing a plurality of support members on the plurality of slide plates installed on the base without connecting the support members mutually, installing a floor material on the plurality of support members, and forming a gap between the slide plate and the floor material.

Advantageous Effects of Invention

According to the first to ninth inventions, since a base isolation floor can be installed by a thin plate-shaped base and a slide plate, the base isolation floor can be easily introduced, and, at the same time, the height of the floor surface is reduced, so that an effective space in a building and the like can be widened.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is a basic schematic diagram of a method of installing a base isolation floor to which the present invention is applied.

FIG. **2**A is a side view of the base isolation floor as viewed from the side, FIG. **2**B is a plan view of a base as viewed from above, and FIG. **2**C is a plan view of a slide plate as viewed from above.

FIGS. **3**A-**3**C are views for explaining an arrangement position of convex curved surface portions.

FIGS. **4**A-**4**D are enlarged views showing an abutment portion of an upper surface portion of the base and a lower surface portion of the slide plate.

FIGS. **5**A-**5**D are views for explaining details of the convex curved surface portion.

FIGS. **6**A and **6**B are views showing an example in which an intermittent slit is formed along a circumferential direction of the convex curved surface portion.

FIGS. **7**A and **7**B are cross-sectional views of the convex curved surface portion or a through-hole as viewed from the side.

FIGS. **8**A-**8**F are views for explaining a method of installing a base isolation floor to which the present invention is applied.

FIGS. **9**A and **9**B are views showing an example of connection with a tape and the like according to a floor area requiring introduction of the base isolation floor.

FIG. **10**A is a plan view of connected substantially rectangular bases as viewed from above, and FIG. **10**B is a plan view of connected substantially rectangular slide plates as view from above.

FIG. **11**A is a plan view of connected substantially square bases as viewed from above, FIG. **11** B is a plan view of connected slide plates installed on the bases as viewed from above, and FIG. **11**C is a plan view of a state in which the slide plates are installed on the bases as viewed from above.

FIG. **12** is a view showing an example in which the base isolation floor is installed using a nonslip sheet having a high friction force instead of a double-sided tape.

FIG. **13** is a view for explaining a dedicated roller having a heating roller for preheating at its front wheel and a heating roller for press-fitting at its rear wheel.

FIG. **14** is a view showing an example in which the base and the slide surface are integrated by applying tapes on chamfered portions in a state of being closely adhered to each other.

FIGS. **15**A-**15**D are views for explaining another constitutional example of the convex curved surface portion.

FIGS. **16**A-**16**C are side views showing a detailed configuration when a slide plate is installed.

FIGS. **17**A and **17** B are views for explaining an installation example of a protective sheet.

FIG. **18** is a view showing an example in which banking and trees are arranged to surround a peripheral edge of the base isolation floor.

FIG. **19** is a view for explaining an example in which an OA floor is formed.

FIGS. **20**A and **20**B are views for explaining another installation example of the base isolation floor according to the present invention.

DESCRIPTION OF EMBODIMENTS

Hereinafter, embodiments for practicing a method of installing a base isolation floor to which the present invention is applied will be described in detail with reference to the drawings.

In the method of installing a base isolation floor to which the present invention is applied, a base isolation floor **7** is installed on an upper surface **1***a* of a floor **1**, as shown in FIG. **1**.

FIG. **2**A is a side view of the base isolation floor **7** as viewed from the side. The base isolation floor **7** is provided with a base **11** and a slide plate **21** installed on the base **11**, as shown in FIG. **2**A. FIG. **2**B shows a plan view of the base **11** as viewed from above. The base **11** is formed into a substantially square flat plate shape whose four corners are chamfered in order to secure play of installation accuracy, and a plurality of convex curved surface portions **12** are regularly arranged on an upper surface portion **11***a* on the slide plate **21** side. Although the base **11** is configured such that each of the four sides of the substantially square shape has a length of about 500 mm and a thickness of about 1.5 mm, the configuration is not limited thereto, and the base **11** may have any size. Although the base **11** is made of metal and preferably stainless steel, the material is not limited thereto, and the base **11** may be made of glass, resin, or any material. The base **11** may be coated with a coat having a predetermined physicality in order to control the friction coefficient or prevent corrosion. In the adjustment of the friction coefficient of a surface of the base **11**, a surface layer of at least the convex curved surface portion **12** may be covered with a hard material such as metal and ceramics, or a surface hardening treatment such as carburizing treatment and boronizing may be additionally applied to control the surface roughness, whereby the friction coefficient of the surface of the base **11** may be adjusted.

Moreover, an interval t between top portions **12***a* of the convex curved surface portions **12** adjacent to each other may be about 25 mm. In the present invention, the interval t is preferably 5 mm to 100 mm. The interval t is an interval requiring elimination of dust and wastes, an interval suitable for manufacturing by press molding, or an interval determined by an allowable loading capacity. Although the convex curved surface portion **12** is preferably configured to have a substantially circular shape as shown in FIG. **2**B, the shape is not limited thereto. Although the convex curved surface portions **12** may be regularly aligned vertically and horizontally in plan view, this invention is not limited thereto, and as shown in FIG. **3**A, the curved surface portions **12** may be formed into a zigzag shape. The convex curved surface portions **12** may be irregularly formed as shown in FIG. **3**B, or the convex curved surface portions **12** having different sizes maybe formed by being aligned regularly as shown in FIG. **3**C.

FIG. **2**C is a plan view of the slide plate **21** as viewed from above. The slide plate **21** is formed into a substantially square flat plate shape whose four corners are chamfered. In the slide plate **21**, the four sides of the substantially square shape have a length of about 500 mm and a thickness of about 1.6 mm. The slide plate **21** according to the present invention is not limited thereto and may be configured to be larger than the base **11** or may be configured to have any size. The slide plate **21** may be formed of metal, glass, resin, or the like, and stainless steel may be used in only the surface layer.

FIG. **4**A is an enlarged view showing an abutment portion of an upper surface portion **11***a* of the base **11** and a lower surface portion **21***b* of the slide plate **21**. In the slide plate **21**, a concave curved surface portion **22** and a through-hole **22***a* are not formed, the lower surface portion **21***b* is made substantially flat, and a sliding portion **23** which is a portion other than an abutment portion with the convex curved surface portion **12** can be coated with a lubricant. The lubricant is represented by grease, tetrafluoroethylene resin, and silicon resin and can reduce the friction coefficient to enhance the sliding property. The lubricant may be mixed with a powder having a particle size of 1 μm to 50 μm, such as diamond and may have a viscosity not less than 100 cst, such as silicon oil, grease, heavy fuel oil, and wax.

In the slide plate **21**, as shown in FIG. **4**B, the lower surface portion **21***b* is substantially flat, and the abutment portion with the convex curved surface portion **12** is subjected to sandblasting, for example, whereby high friction portions **22***b* having a large friction coefficient are formed, and the sliding portion **23** may be coated with the above lubricant. The sliding portion **23** may be coated with a lubricant (not shown) such as grease, tetrafluoroethylene resin, and silicon resin, as shown in FIG. **4**B. Namely, in the embodiment of FIG. **4**B, the high friction portions **22***b* having a large friction coefficient are provided just at the abutment portion with the convex curved surface portion **12**, and a lubricant having a small friction coefficient is coated onto a portion other than the abutment portion with the convex curved surface portion **12**, whereby both the power of resistance until reaching the start of sliding according to the slide plate **21** and the sliding property after the start of sliding can be freely adjusted. According to this constitution, it is possible to provide an ideal base isolation device which does not easily move even if incorrectly pushed by an operator by mistake in normal times and smoothly moves when shifted from the abutment position due to occurrence of a large earthquake to exercise a base isolation performance.

In the slide plate **21**, as shown in FIG. **4**C, the base **11** may be able to be abutted against the slide plate **21** from the lower side through the lower surface portion **21***b*. More specifically, in the lower surface portion **21***b*, a plurality of the concave curved surface portions **22** are regularly aligned. Namely, the alignment position of the concave curved surface portions **22** corresponds to the alignment position of the convex curved surface portions **12** in plan view, and the slide plate **21** is installed on the base **11**, whereby the concave curved surface portions **22** are provided to be located on the convex curved surface portion **12** in the base **11**. It should be noted that the slide plate **21** is not limited to this form, and instead of the concave curved surface portions **22**, the through-holes **22***a* may be formed to correspond to the alignment position of the convex curved surface portions **12** in plan view, as shown in FIG. **4**D.

FIG. **5**A is a cross-sectional view of the convex curved surface portion **12** as viewed from the side in this example. FIG. **5**B is a plan view of the convex curved surface portion **12** as viewed from above in this example. In this example, as shown in FIG. **5**A, the convex curved surface portion **12** is formed by press working and the like so that a diameter d_{12} of the convex curved surface in plan view is about 10 mm, a curvature radius r of the top portion **12***a* is about 30 mm, and a height H is about 1.0 mm. Although there is no particular limitation on the curvature constituting the convex curved surface portion **12**, a top surface is particularly adjusted so that the curvature is gentle, whereby a contact area with the concave curved surface portion **22** is increased, and the sliding property may be improved. The invention is not limited to this example, and, as shown in FIGS. **5**C and **5**D, a substantially circular raised portion **12***b* may be formed outside of the concentric circle of the convex curved surface portion **12** in plan view. By virtue of the provision of the raised portion **12***b*, flexibility (spring property) is provided in the vertical direction, so that unevenness of the floor surface (poor plane precision) can be absorbed. The convex curved surface portion **12** may have intermittent slits **12***c* formed along a circumferential direction in plan view of the convex curved surface portion **12**, as shown in FIGS. **6**A and **6**B. The slit **12***c* may be penetrated or may be constituted of a non-through groove. By virtue of the provision of the slit **12***c*, an internal stress produced when a large number of the convex curved surface portions **12** are press-molded can be released to a seamless steel plate, and the plane precision of the steel plate concerned can be secured.

FIG. **7**A is a cross-sectional view of the concave curved surface portion **22** as viewed from the side in this example. The concave curved surface portion **22** shown in FIG. **4**C has the same curvature radius as the top portion **12***a* of the convex curved surface portion **12**, as shown in FIG. **7**A; however, this invention is not limited thereto, the concave curved surface portion **22** may have the larger curvature radius . A depth h_{22} of the concave curved surface portion **22** is smaller than the height H of the top portion **12***a* of the convex curved surface portion **12**, and the concave curved surface portion **22** is formed by press working and the like to have a depth of 0.05 mm to 0.50 mm. Moreover, a diameter d_{22} of the concave curved surface portion **22** is preferably not less than the diameter d_{12} of the convex curved surface portion **12** so that the top portion **12***a* of the convex curved surface portion **12** is abuttable against the inside of the concave curved surface portion **22**.

FIG. **7**B is a cross-sectional view of the through-hole **22***a* as viewed from the side in another example. The through-holes **22***a* shown in FIG. **4**D are formed using a punching tool such as a punch while the diameter d_{22a} is smaller than the diameter d_{12} of the convex curved surface portion **12** so that only the top portion **12***a* of the convex curved surface portion **12** is fitted into the through-hole **22***a*. When the convex curved surface portion **12** is constituted of a planar substantially circular shape, the through-hole **22***a* is constituted of a planar substantially circular shape in accordance with the shape of the convex curved surface portion **12**, whereby the convex curved surface portion **12** can be fitted into the through-hole **22***a* in such a state that both of them are stable.

Next, details of a method of installing a base isolation floor **7** to which the present invention is applied will be described along with the basic concept.

In the method of installing the base isolation floor **7** to which the present invention is applied, in this example, as shown in FIGS. **8**A and **8**B, double-sided tapes **2***a* are first applied in parallel onto the upper surface **1***a* of the floor **1** at intervals of the length of one side of the base **11** so as to be substantially parallel to each other. The double-sided tapes **2***a* are applied substantially parallel to each other, whereby since a portion at which the double-sided tapes **2***a* overlap is not generated in comparison with a case where the double-sided tapes are applied in a lattice shape, it is possible to prevent from causing an unstable state when the base isolation floor **7** is installed on the overlapping double-sided tapes **2***a*. In the method of installing the base isolation floor **7** to which the present invention is applied, in another example, instead of the double-sided tape **2***a*, a seal material such as an emulsion based adhesive is coated onto the upper surface **1***a* of the floor **1**, whereby an adhesive layer can be formed.

Next, in the method of installing the base isolation floor **7** to which the present invention is applied, in this example, as shown in FIGS. **8**C and **8**D, the bases **11** are installed on the double-sided tapes **2***a* applied in parallel while being aligned without intervals. The base **11** is installed on the double-sided tapes **2***a* or a seal material and thereby fixed by the adhesive force of the double-sided tapes **2***a* or the seal material, so that movement of the base **11** is suppressed. In the method of installing the base isolation floor **7** to which the present invention is applied, in another example, the double-sided tape **2***a* or the seal material is not coated onto the upper surface **1***a* of the floor **1**, and the base **11** may be directly installed on the upper surface **1***a* of the floor **1**. According to this constitution, the movement of the base **11** can be suppressed by a friction force between the upper surface **1***a* of the floor **1** and a bottom surface portion **11***b* of the base **11**.

Next, as shown in FIGS. **8**E and **8**F, the slide plates **21** are aligned and installed on the bases **11**. In such a case, the slide plate **21** is installed so that the convex curved surface portions **12** are fitted into the concave curved surface portions **22** or the through-holes **22***a* on the base **11** shown in FIGS. **4**C and **4**D. At this time, the slide plate **21** may be installed while being setback by a movement margin δ_0 from a peripheral edge of the base **11**. When the slide plate **21** is installed while being setback with respect to the base **11**, even if the slide plate **21** is moved by vibration of an earthquake to be described later, the slide plate **21** is prevented from being fallen from the base **11** of the peripheral edge of the base isolation floor **7**, and displacement of the slide plate **21** can be absorbed.

Even when the slide plate **21** moves beyond a range of the above setback and is fallen from the base **11**, the slide plate **21** moves on the upper surface **1***a* of the floor **1** to some extent by inertia and then naturally stops. Thus, when the movement of the slide plate **21** moderately and naturally stops, overturning of precision equipment and the like placed on the slide plate **21** can be avoided.

As shown in FIGS. **9**A and **9**B, the slide plates **21** are used by being connected with a tape **89** or the like according to a floor area requiring introduction of the base isolation floor **7**. In another example, the bases **11** may be similarly used by being connected with a seal material such as the tape **89**. When the bases **11** and the slide plates **21** are each connected to be integrated, the base **11** and the slide plate **21** are easily positioned, and construction properties of installation can be enhanced. Furthermore, an upper surface of the integrated slide plates **21** can be widely used as the base isolation floor **7**. Moreover, the base **11** and the slide plate **21** adjacent to each other can be connected using bolts and the like. As shown in FIGS. **9**A and **9**B, in order to allow the above setback at the peripheral edge of the base **11**, the integrated slide plate **21** at the outermost circumference may have shape and size different from the slide plate provided on the inner circumference side.

In FIG. **10**A, the bases **11** having a substantially rectangular shape and the bases **11** having a substantially square shape are connected, and in FIG. **10**B, the slide plate **21** having a substantially rectangular shape and the slide plate **21** having a substantially square shape are connected. In this example, the base **11** and the slide plate **21** are different in the direction of the long side. In FIG. **11**A, the bases **11** having a substantially square shape are connected, and in FIG. **11**B, the slide plates **21** having a substantially rectangular shape and the small slide plates **21** having a substantially square shape are connected at the outermost circumference of the connected slide plates **21** having a substantially square shape. As shown in FIG. **11**C, the slide plate **21** can be installed so that at least two sides in each of the slide plates **21** overlap the inside surrounded by four sides of the bases **11** by approximately ½ of the side length. By virtue of the use of them, each side of the base **11** and each side of the slide plate **21** less likely to overlap in the earthquake motion. Thus, it is possible to avoid collision of the peripheral edge of the slide plate **21** with the peripheral edge of the base **11** due to turning-up of the base **11**. In this case, the amplitude (movable distance) of a scenario earthquake is not more than ½ of the side length. When the amplitude of the scenario earthquake is 250 mm, the side length is required to be not less than 500 mm.

In the method of installing the base isolation floor **7** to which the present invention is applied, in another example, instead of the double-sided tape **2***a*, a nonslip sheet **2***b* having a friction force higher than that of the upper surface **1***a* of the floor **1** can be used, as shown in FIG. **12**. As a method of using the nonslip sheet **2***b*, first, in STEP **1**, equipment **4** is jacked up, for example, a foot portion **4***b* of the equipment **4** is spaced apart from the upper surface **1***a* of the floor **1** at intervals not less than the thickness of the nonslip sheet **2***b*, the base isolation floor **7**, and a thick plate **72**. Next, in STEP 2, the base isolation floor **7** and the thick plate **72** are placed on the nonslip sheet **2***b*, and the nonslip sheet **2***b* is pulled in the arrow direction in the drawing, whereby the base isolation floor **7** and the thick plate **72** are slid in between the upper surface **1***a* of the floor **1** and a bottom portion **4***a* of the equipment **4**, and the base isolation floor **7** is fixed to the upper surface la of the floor **1** by a friction force with the nonslip sheet **2***b*.

Next, in STEP **3**, the nonslip sheet **2***b* is cut at a boundary with a portion laid under the base isolation floor **7**. Finally, in STEP **4**, the equipment **4** is installed on the base isolation floor **7** and the thick plate **72**. In the method using the nonslip sheet **2***b*, even when the base isolation floor **7** is applied to the existing equipment **4**, the base isolation floor **7** can be slid in between only by slightly lifting up the bottom portion **4***a* of the equipment **4**, and massive movement of the equipment **4** is not required. Thus, particularly in a case where a large power is required to lift the equipment **4** because the weight of the equipment **4** is large, the base isolation floor **7** can be installed more efficiently. It should be noted that the nonslip sheet **2***b* coated on its surface with resin into a granular state may be used. According to this constitution, the sliding property can be controlled by adjusting the friction force between the nonslip sheet **2***b* and the upper surface **1***a* of the floor **1** produced when the nonslip sheet **2***b* is actually pulled, and the friction coefficient can be increased to prevent the base isolation floor **7** installed on the nonslip sheet **2***b* from shifting easily during pulling work.

Moreover, the nonslip sheet **2***b* can be used as a substitute for the double-sided tapes **2***a* shown in FIGS. **8**A-**8**F by being spread all over the upper surface **1***a* of the floor **1** on which the base isolation floor **7** is installed. Furthermore, the nonslip sheet **2***b* includes a sheet coated on its surface with olefin elastomer resin into a granular state and a sheet adhered on its surface with, for example, silicon carbide granules, glass sand granules, or white alumina granules.

Furthermore, in the method of installing the base isolation floor **7** to which the present invention is applied, in another example, when this method is used in a low temperature space of not more than 0° C., such as a freezer, a water absorbing cloth can be used instead of the double-sided tape **2***a*. The water absorbing cloth can be adhered to the upper surface **1***a* of the floor **1** by being frozen in the low temperature space. In another example, when the double-sided tape **2** is applied in the low temperature space of not more than 0° C., such as a freezer, a roller for use in refrigerating chamber **71** having a heating roller for preheating **71***a* at its front wheel and a heating roller for press-fitting **71***b* at its rear wheel may be used, as shown in FIG. **13**. In this example, the double-sided tape **2***a* is fed from a winding portion **71***c* while a handle **71***d* is pushed by a hand, and the double-sided tape **2***a* can be adhered to the upper surface **1***a* of the floor **1**, heated by the heating roller for preheating **71***a* provided at its front wheel, while being pressed by the heating roller for press-fitting **71***b* provided at its rear wheel, so that the double-sided tape **2***a* can be applied onto the floor **1** even in the low temperature space.

The four corners of the base **11** and the slide plate **21** are chamfered, as shown in FIG. **14**, and thus, the tape **89** is applied to a chamfered portion **32** while the base **11** and the slide plate **21** are closely adhered to each other, whereby the base **11** and the slide plate **21** can be carried while being integrated with each other. According to this constitution, since the base **11** and the slide plate **21** are conveyed while being closely adhered to each other, there is little to no gap between the base **11** and the slide plate **21**, and it is possible to prevent dust from being adhered to between the base **11** and the slide plate **21**. The tape **89** is peeled when the base **11** and the slide plate **21** are installed on the floor **1**, and the peeled tape **89** is reusable in the connection between the adjacent bases **11** or the adjacent slide plates **21**, so that smooth connecting operation becomes possible.

When the base **11** is formed of synthetic resin, a hardener **87** can be filled into the convex curved surface portion **12** shown in FIGS. **15**A-**15**D, whereby the compressive strength of the convex curved surface portion **12** can be enhanced. In the convex curved surface portion **12**, the raised portion **12***b* is formed outside of the concentric circle, as shown in FIG. **5**C, whereby even if distortion occurs during processing, the raised portion **12***b* is freely elastically deformed to thereby allow absorption of the distortion.

As shown in FIGS. **15**C and **15**D, the inside of the convex curved surface portion **12** may be filled with the hardener **87**. According to this constitution, a sufficient supporting force can be held. Furthermore, in this example, a foam **85** is fitted in around the convex curved surface portion **12**. According to this constitution, a lubricant is stored, and a sliding performance can be stabilized. Moreover, in the top surface of the convex curved surface portion **12**, a minute recessed portion is previously provided, whereby oil may be filled in the recessed portion. The oil can be coated onto the lower surface portion **21***b* of the slide plate **21** through the top surface of the convex curved surface portion **12**, so that a coefficient of dynamic friction between the slide plate **21** and the base **11** can be naturally adjusted.

The slit **12***c* is inserted into the outer circumference of the convex curved surface portion **12**, as shown in FIGS. **6**A and **6**B, whereby an internal stress produced when the convex curved surface portions **12** are press-molded can be released from the slit **12***c*. According to this constitution, in the present invention, the convex curved surface portion **12** can be formed with high accuracy. When the through-hole **22***a* is formed, a punching tool is used in the processing, whereby a smooth cut surface can be formed. The slide plate **21** is formed at its peripheral edge with a taper portion **84**, as shown in FIG. **2**A, whereby the sliding performance at the peripheral edge portion can be further enhanced.

The convex curved surface portions **12** are arranged while being aligned vertically and horizontally or arranged in a zigzag pattern, whereby sliding of the slide plate **21** can be smoothed, and moreover, a load applied from the equipment **4** is uniformized, so that stable sliding can be realized in such a state that the equipment **4** is placed on the slide plate **21**. A lubricant is previously coated between the base **11** and the slide plate **21**, whereby the sliding of the slide plate **21** is smoothed, and, at the same time, an effect of attenuating the vibration of an earthquake can be exercised.

A static friction coefficient between the concave curved surface portions **22** and the convex curved surface portion **12** fitted into the concave curved surface portions **22** depends on the depth of fitting and is set to 0.10 to 0.40, for example, whereby when no earthquake occurs, the movement of the slide plate **21** can be strongly suppressed. Thus, the equipment **4** placed on the base isolation floor **7** can be prevented from being easily moved by such a slight impact that a person knocks against the equipment **4** when no earthquake occurs. In another example, even in the through-hole **22***a* shown in FIG. **4**D and the high friction portion **22***b* shown in FIGS. **4**A and **4**B, the above static friction coefficient is set to 0.10 to

0.40, for example so as to depend on the size of the through-hole **22***a*, whereby it is possible to prevent the slide plate **21** from being moved when no earthquake occurs as in the case where the concave curved surface portion **22** shown in FIG. **4**C is formed.

Since the convex curved surface portion **12** has an upward convex shape, dust to be adhered to the base isolation floor **7** is fallen from the convex curved surface portion **12** by gravity. Thus, the base isolation floor **7** can prevent the above static friction coefficient from being reduced by the fact that dust is held between the convex curved surface portion **12** and the concave curved surface portion **22**.

In this example, the sliding portion **23** formed with no concave curved surface portion **22** is set low so that the coefficient of dynamic friction generated when the convex curved surface portion **12** is abutted against the sliding portion **23** is approximately 0.04. Thus, when the vibration of an earthquake is more than a static friction force between the convex curved surface portion **12** and the concave curved surface portion **22**, and when the fitting state between the convex curved surface portion **12** and the concave curved surface portion **22** is released, the slide plate **21** can smoothly slide between the convex curved surface portion **12** and the sliding portion **23**. According to this constitution, the base isolation floor **7** according to the present invention, when an earthquake occurs, the slide plate **21** slides against the base **11**, whereby the vibration of the earthquake can be absorbed. Regarding the coefficient of dynamic friction, the surface layer of the convex curved surface portion **12** is covered with a hard material such as metal and ceramics or additionally subjected to surface hardening treatment such as carburizing treatment and boronizing, whereby the coefficient of dynamic friction can be set lower, so that a stabilized sliding performance can be obtained.

As shown in FIG. **9**A, a water stop material **88** such as a seal material, a grease in a sol or gel state, and wax may be filled in between the base **11** and the slide plate **21**. Consequently, intrusion of water and dust into between the base **11** and the slide plate **21** is prevented, and the base isolation floor **7** can be prevented from being oxidized and corroded. The water stop material **88** is provided at the peripheral edge of the slide plate **21**, whereby it is possible to strongly suppress intrusion of rainwater and the like. Furthermore, between the base **11** and the slide plate **21**, an outermost circumference **7***a* of the base isolation floor **7** is sealed and tightly closed, and the existing inner air is replaced with an inert gas such as nitrogen gas and argon gas, whereby the base **11** and the slide plate **21** formed mainly of metal can be prevented from being oxidized by air, so that the base isolation floor **7** can be prevented from being oxidized and corroded. Moreover, the surface layers of the base **11** and the slide plate **21** are covered with polyethylene or the like, whereby chemical resistance against sulfuric acid, hydrochloric acid, aqua regia and the like can be enhanced.

When the slide plate **21** is installed while being setback, since the upper surface **1***a* of the floor **1**, the upper surface portion **11***a* of the base **11**, and the slide plate **21** are installed in a stepwise manner, as shown in FIG. **16**A, a step between the upper surface **1***a* of the floor **1** and the slide plate **21** is gentle in comparison with a case where setback is not performed. Thus, getting on and off of a carriage and the like on the floor **1** installed with no base isolation floor **7** and the base isolation floor **7** can be smoothed. In another example, when setback is not performed, a step elimination member **31** may be installed, as shown in FIG. **16**B. As shown in FIG. **16**C, a buffer member vertically formed with a plurality of honeycomb-shaped cylindrical portions or an elastic member formed of rubber, synthetic resin, or the like is used as the step elimination member **31**, whereby a step can be eliminated, and, at the same time, impact due to the movement of the slide plate **21** can be absorbed.

A protective sheet **2** is installed on the slide plate **21** while covering the base isolation floor **7**, as shown in FIGS. **17**A and **17**B. The protective sheet **2** may be mounted on the slide plate **21** through an adhesive portion **83** formed of a thermosetting resin such as epoxy or another material having elasticity. According to this constitution, the protective sheet **2** can be installed while being integrated with the slide plate **21**, and construction properties of the installation of the slide plate **21** and the protective sheet **2** can be enhanced. Furthermore, the protective sheet **2** is installed in an area larger than the base isolation floor **7**, whereby the base **11** and the slide plate **21** are completely covered with the protective sheet **2** and thereby configured not to be directly exposed outside, so that it is possible to prevent intrusion of dust from outside into between the base **11** and the slide plate **21** and enhance the durability of the base isolation floor **7**. In the base isolation floor **7** according to the present invention, banking **9***a*, trees **9***b*, and the like are arranged surrounding the peripheral edge of the base isolation floor **7**, as shown in FIG. **18**, whereby the slide plate **21** can be prevented from being fallen from the base **11** constituting the peripheral edge of the base isolation floor **7**.

In the thickness of the base isolation floor **7** obtained by stacking the double-sided tape **2***a*, the base **11**, the slide plate **21**, and the protective sheet **2**, a thickness H of the base **11** is 1.5 mm, a thickness h_{21} of the slide plate **21** is 1.6 mm, and a thickness h_2 of the protective sheet **2** is approximately 2.0 mm, as shown in FIG. **16**A, and therefore, the total thickness of the base isolation floor **7** is so thin as approximately 5.0 mm.

Since the thickness h_{21} of the slide plate **21** is so small as 1.6 mm, even when the slide plate **21** is installed while being setback with respect to the base **11**, as shown in FIG. **16**A, the step between the slide plate **21** and the base **11** can be reduced. At this time, since the thickness H of the base **11** is so small as 1.5 mm, a step between the base **11** and the floor **1** can be reduced. Furthermore, the thickness of the slide plate **21** is so small as 1.6 mm, and therefore, even when the slide plate **21** is fallen from the base **11** and collides with a wall surface **9***d*, the slide plate **21** can be easily buckled, so that impact due to the collision can be absorbed by hysteresis due to buckling of the slide plate **21**. Thus, the base isolation floor **7** can prevent overturning of the equipment **4** and the like installed thereon.

In the base isolation floor **7** according to the present invention, as shown in FIGS. 7A and 7B, in the bottom surface portion **11***b* of the base **11**, an elastic plate **2***d* which is to be just put on a floor surface without being adhered and fixed to the floor surface and is formed of synthetic rubber or the like can be installed. According to this constitution, the base isolation floor **7** can absorb not only horizontal external force due to an earthquake or the like but also vertical external force. The elastic plate **2***d* can be installed on the upper surface portion **21***c* of the slide plate **21**. Concrete (not shown) can be placed on the base isolation floor **7** shown in FIG. **1**. Instead of placement of concrete, a floor plate formed of precast concrete (not shown) is installed, and the base isolation floor **7** and the floor plate can be joined by bolts or the like. Accordingly, increase of the height of the floor surface, on which the base isolation floor **7** is installed, due to the installation of the base isolation floor **7** is suppressed, and a wide effective space in a building can be secured. Since the thickness of the base isolation floor **7** is small, the base isolation floor **7** can be installed while the bottom portion **4***a* of the existing equipment **4** is lifted as shown in FIG. **12**.

In the base isolation floor **7** according to the present invention, as shown in FIG. **19**, a support member **92** is installed in the upper portion, a gap **91** is provided between the support member **92** and a floor material **93**, and an OA floor can be formed. In a place where a precision machine such as server, requiring prevention of overturning is installed, particularly the base isolation floor **7** according to the present invention exercises an effect as a base isolation device.

The base isolation floor **7** according to the present invention is installed not only on the entire floor **1** but, as shown in FIG. **20**A, may be installed intensively only on the bottom portion **4***a* of the specific equipment **4**. According to this constitution, in the base isolation floor **7** according to the present invention, cost required for installation thereof can be suppressed in comparison with the case where the base isolation floor **7** is installed on the entire floor **1**. Furthermore, in the equipment **4** having the foot portion **4***b*, the thick plate **72** formed of steel, wood, or the like may be disposed between the slide plate **21** and the foot portion **4***b*, as shown in FIG. **20**A. According to this constitution, as shown in FIG. **20**B, the center of gravity of the equipment **4** through the thick plate **72** can be located as above the base **11** as possible, and if the equipment **4** is on (within the range of) the base **11** along with the slide plate **21**, the slide plate **21** is not fallen from above the base **11**, and the base isolation function can be exercised.

Hereinabove, although the examples of the present invention have been described in detail, the above examples are merely examples of the embodiment for carrying out the invention, and the technical range of the present invention should not be limited to only these examples.

For example, in the base isolation floor **7** according to the present invention, the slide plate **21** is installed on the floor **1** so that the concave curved surface portion **22** is directed upward, and the base **11** may be installed on the slide plate **21** so that the convex curved surface portion **12** is directed downward. FIG. **15**A shows a bottom view of the convex curved surface portion **12** protruded to be directed downward, and FIG. **15**B shows a side view of the convex curved surface portion **12**. An O-ring **86** is fitted into the convex curved surface portion **12**. In this case, the hardener **87** may be supplied into the convex curved surface portion **12** installed to be directed downward. When the O-ring **86** is formed of synthetic rubber, for example, the friction coefficient with respect to the slide plate **21** can be adjusted.

REFERENCE SIGNS LIST

1 Floor
1*a* Upper surface of floor
2 Protective sheet
2*a* Double-sided tape
2*b* Nonslip sheet
2*c* Water absorbing cloth
2*d* Elastic plate
4 Equipment
4*a* Bottom portion of equipment
4*b* Foot portion of equipment
7 Base isolation floor
7*a* Outermost circumference of base isolation floor
9*a* Banking
9*b* Tree
11 Base
11*a* Upper surface portion of base
11*b* Bottom surface portion of base
12 Convex curved surface portion
12*a* Top portion
12*b* Raised portion
12*c* Slit
12*d* O-ring
21 Slide plate
21*a* Lower surface portion of slide plate
21*b* Taper portion
21*c* Upper surface portion of slide plate
22 Concave curved surface portion
22*a* Through-hole
22*b* High friction portion
22*c* Oil
23 Slide portion
31 Step elimination member
32 Chamfered portion
71 Roller for use in refrigerating chamber
71*a* Heating roller for preheating
71*b* Heating roller for press-fitting
72 Thick plate
84 Taper portion
85 Foam
86 O-ring
87 Hardener
88 Water stop material
89 Tape
91 Gap
92 Support member
93 Floor material

The invention claimed is:

1. A method of installing a base isolation floor, the method comprising:

installing a plurality of plate-shaped bases on a nonslip sheet which is placed on a floor surface, wherein the nonslip sheet has a friction coefficient larger than that of the floor surface, and wherein the plurality of bases have a plurality of upward convex curved surface portions aligned on upper surfaces thereof;

installing a plurality of plate-shaped slide plates, each having a substantially flat lower surface, on the bases such that the slide plates are movable by an earthquake motion; and

pulling an end of the nonslip sheet to slide the nonslip sheet along the floor surface to position the slide plates and the bases beneath a bottom portion of a piece of equipment, and installing the piece of equipment onto the slide plates;

wherein the bases and the slide plates are installed such that a slide plate among the slide plates is movable by the earthquake motion to be dropped from above the bases onto the floor surface around the bases, and moved on the floor surface by inertia to be decelerated and stopped.

2. A method of installing a base isolation floor, the method comprising:

installing a plurality of plate-shaped bases on double-sided tapes applied onto a floor surface and thereby arranging the bases on the floor surface, wherein the double-sided tapes are arranged on the floor surface in a plurality of columns to be substantially parallel to each other, and wherein the plurality of bases have a plurality of upward convex curved surface portions aligned on upper surfaces thereof; and

installing a plurality of plate-shaped slide plates, each having a substantially flat lower surface, on the bases such that the slide plates are movable by an earthquake motion, wherein the bases and the slide plates are installed such that a slide plate among the slide plates is movable by the earthquake motion to be dropped from above the bases onto the floor surface around the bases, and moved on the floor surface by inertia to be decelerated and stopped; and

wherein the method further comprises, when installing the bases in a space with a room temperature of not more than 0° C., preheating the floor surface using a forward first heating roller, and applying and press-fitting the double-sided tape onto the preheated floor surface using a second heating roller which is arranged rearward of the forward first heating roller.

3. The method according to claim **2**, wherein each of the bases has a thickness of 1.5 mm.

4. The method according to claim **2**, wherein a lower surface of each of the slide plates is coated with a lubricant at a portion not abutted against the convex curved surface portions of the bases in a state in which the slide plates are installed on the bases.

5. The method according to claim **2**, wherein after the slide plates are installed on the bases, a thick plate is further installed on the slide plates.

6. A method of installing a base isolation floor, the method comprising:

installing a plurality of plate-shaped bases on double-sided tapes applied onto a floor surface and thereby arranging the bases on the floor surface, wherein the double-sided tapes are arranged on the floor surface in a plurality of columns to be substantially parallel to each other, and wherein the plurality of bases have a plurality of upward convex curved surface portions aligned on upper surfaces thereof; and

installing a plurality of plate-shaped slide plates, each having a substantially flat lower surface, on the bases such that the slide plates are movable by an earthquake motion,

wherein the bases and the slide plates are installed such that a slide plate among the slide plates is movable by the earthquake motion to be dropped from above the bases onto the floor surface around the bases, and moved on the floor surface by inertia to be decelerated and stopped, and

wherein after the slide plates are installed on the bases, the bases and a peripheral edge of the slide plates are sealed, and air of a gap between the bases and the slide plates is replaced with an inert gas.

7. The method according to claim **2**, further comprising:

installing a plurality of support members on the slide plates installed on the bases without connecting the support members mutually, and installing a floor material on the support members, thereby forming a gap between the slide plates and the floor material and thereby installing an Over and Above (OA) floor.

8. The method according to claim **6**, wherein each of the bases has a thickness of 1.5 mm.

9. A method of installing a base isolation floor, the method comprising:

installing a plurality of plate-shaped bases on an adhesive layer coated onto a floor surface and thereby arranging the bases on the floor surface, wherein the plurality of bases have a plurality of upward convex curved surface portions aligned on upper surfaces thereof; and

installing a plurality of plate-shaped slide plates, each having a substantially flat lower surface, on the bases such that the slide plates are movable by an earthquake motion,

wherein the bases and the slide plates are installed such that a slide plate among the slide plates is movable by the earthquake motion to be dropped from above the bases onto the floor surface around the bases, and moved on the floor surface by inertia to be decelerated and stopped, and

wherein after the slide plates are installed on the bases, the bases and a peripheral edge of the slide plates are sealed, and air of a gap between the bases and the slide plates is replaced with an inert gas.

10. The method according to claim **1**, wherein each of the bases has a thickness of 1.5 mm.

11. The method according to claim **6**, wherein a lower surface of each of the slide plates is coated with a lubricant at a portion not abutted against the convex curved surface portions of the bases in a state in which the slide plates are installed on the bases.

12. The method according to claim **9**, wherein a lower surface of each of the slide plates is coated with a lubricant at a portion not abutted against the convex curved surface portions of the bases in a state in which the slide plates are installed on the bases.

13. The method according to claim **1**, wherein a lower surface of each of the slide plates is coated with a lubricant at a portion not abutted against the convex curved surface portions of the bases in a state in which the slide plates are installed on the bases.

14. The method according to claim **6**, wherein after the slide plates are installed on the bases, a thick plate is further installed on the slide plates.

15. The method according to claim **9**, wherein after the slide plates are installed on the bases, a thick plate is further installed on the slide plates.

16. The method according to claim **1**, wherein after the slide plates are installed on the bases, a thick plate is further installed on the slide plates.

17. The method according to claim **9**, wherein each of the bases has a thickness of 1.5 mm.

18. A method of installing a base isolation floor, the method comprising:

installing a plurality of plate-shaped bases on a nonslip sheet which is placed on a floor surface, wherein the nonslip sheet has a friction coefficient larger than that of the floor surface, and wherein the plurality of bases have a plurality of upward convex curved surface portions aligned on upper surfaces thereof; and

installing a plurality of plate-shaped slide plates, each having a substantially flat lower surface, on the bases such that the slide plates are movable by an earthquake motion,

wherein the bases and the slide plates are installed such that a slide plate among the slide plates is movable by the earthquake motion to be dropped from above the bases onto the floor surface around the bases, and moved on the floor surface by inertia to be decelerated and stopped, and

wherein after the slide plates are installed on the bases, the bases and a peripheral edge of the slide plates are sealed, and air of a gap between the bases and the slide plates is replaced with an inert gas.

19. The method according to claim **1**, wherein after the slide plates are installed on the bases, the bases and a peripheral edge of the slide plates are sealed, and air of a gap between the bases and the slide plates is replaced with an inert gas.

20. The method according to claim **6**, further comprising: installing a plurality of support members on the slide plates installed on the bases without connecting the support members mutually, and installing a floor material on the support members, thereby forming a gap between the slide plates and the floor material and thereby installing an OA floor.

21. The method according to claim **9**, further comprising: installing a plurality of support members on the slide plates installed on the bases without connecting the support members mutually, and installing a floor material on the support members, thereby forming a gap between the slide plates and the floor material and thereby installing an OA floor.

22. The method according to claim **1**, further comprising: installing a plurality of support members on the slide plates installed on the bases without connecting the support members mutually, and installing a floor material on the support members, thereby forming a gap between the slide plates and the floor material and thereby installing an OA floor.

23. The method according to claim **18**, wherein each of the bases has a thickness of 1.5 mm.

24. The method according to claim **18**, wherein a lower surface of each of the slide plates is coated with a lubricant at a portion not abutted against the convex curved surface portions of the bases in a state in which the slide plates are installed on the bases.

25. The method according to claim **18**, wherein after the slide plates are installed on the bases, a thick plate is further installed on the slide plates.

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